

CLAIMS

What is claimed is:

1. A method of performing a trick mode on a video signal containing a plurality of progressively scanned original pictures, comprising the steps of:
 3. in response to a trick mode command, selectively repeating at least one of the original pictures to convert the video signal to a trick mode video signal; and
 5. selectively inserting at least one dummy predictive picture in the trick mode video signal.
2. The method according to claim 1, further comprising the steps of:
 3. monitoring the trick mode video signal; and
 4. wherein the step of selectively inserting at least one dummy predictive picture in the trick mode video signal is done if the bit rate of the trick mode video signal exceeds a predetermined threshold.
3. The method according to claim 1, wherein each of the plurality of original pictures contains a display indicator and the method further comprises the step of selectively modifying the display indicator of at least a portion of the plurality of original pictures to reflect an intended display order when an original picture is repeated or when a dummy predictive picture is inserted in the trick mode video signal.
4. The method according to claim 3, wherein the display indicator is a temporal reference field.

1 5. The method according to claim 4, wherein each temporal reference
2 field has an integer value and the step of selectively modifying the temporal
3 reference field of at least a portion of the plurality of original pictures comprises the
4 step of incrementally increasing by one the integer value of the temporal reference
5 field each time an original picture is repeated and each time a dummy predictive
6 picture is inserted in the trick mode video signal.

1 6. The method according to claim 1, wherein each dummy predictive
2 picture is predicted from a reference picture.

1 7. The method according to claim 6, wherein the reference picture is an
2 intra picture.

1 8. The method according to claim 6, wherein the reference picture is a
2 predictive picture.

1 9. The method according to claim 1, wherein at least a portion of the trick
2 mode video signal is decoded by a remote decoder.

1 10. In a remote decoder arrangement, a method of performing a trick mode
2 on a video signal containing a plurality of progressively scanned original pictures,
3 wherein each of the plurality of progressively scanned original pictures contains a
4 display indicator, comprising the steps of:

5 in response to a trick mode command, selectively repeating at least one of the
6 original pictures to convert the video signal to a trick mode video signal;

7 monitoring a bit rate of the trick mode video signal;
8 selectively inserting at least one dummy predictive picture in the trick mode
9 video signal if the bit rate exceeds a predetermined threshold; and
10 selectively modifying the display indicator of at least a portion of the plurality
11 of original pictures to reflect an intended display order when an original picture is
12 repeated or when a dummy predictive picture is inserted in the trick mode video
13 signal.

1 11. A method of performing a trick mode on a video signal containing a
2 plurality of progressively scanned original pictures, comprising the steps of:
3 receiving a trick mode command; and
4 selectively inserting at least one dummy predictive picture in the video signal
5 to form a trick mode video signal.

1 12. The method according to claim 11, wherein each of the plurality of
2 original pictures contains a display indicator and the method further comprises the
3 step of selectively modifying the display indicator of at least a portion of the plurality
4 of original pictures to reflect an intended display order each time said selectively
5 inserting step is performed.

1 13. The method according to claim 12, wherein the display indicator is a
2 temporal reference field.

1 14. The method according to claim 13, wherein each temporal reference
2 field has an integer value and the step of selectively modifying the temporal

3 reference field of at least a portion of the plurality of original pictures comprises the
4 step of incrementally increasing by one the integer value of the temporal reference
5 field each time said selectively inserting step is performed.

1 15. The method according to claim 11, wherein at least a portion of the
2 trick mode video signal is decoded by a remote decoder.

1 16. A method of decoding a digitally encoded signal, comprising the steps
2 of:

3 transmitting the digitally encoded signal to a remotely located decoder; and
4 decoding at least a portion of the digitally encoded signal at the remotely
5 located decoder, wherein the digitally encoded signal contains at least one dummy
6 predictive picture and additional pictures selected from the group comprising intra
7 pictures, predictive pictures or bidirectional predictive pictures.

1 17. A system for performing a trick mode on a video signal containing a
2 plurality of progressively scanned original pictures, comprising:
3 a controller for reading data from a storage medium and outputting the video
4 signal containing the plurality of original pictures; and
5 a processor, wherein the processor is programmed to:
6 in response to a trick mode command, selectively repeat at least one of
7 the original pictures to convert the video signal to a trick mode video signal;
8 and
9 selectively insert at least one dummy predictive picture in the trick
10 mode video signal.

1 18. The system according to claim 17, wherein the video processor is
2 further programmed to:

3 monitor the trick mode video signal; and
4 selectively insert at least one dummy predictive picture in the trick
5 mode video signal if the bit rate of the trick mode video signal exceeds a
6 predetermined threshold.

1 19. The system according to claim 17, wherein each of the plurality of
2 original pictures contains a display indicator and the video processor is further
3 programmed to modify selectively the display indicator of at least a portion of the
4 plurality of original pictures to reflect an intended display order when an original
5 picture is repeated or when a dummy predictive picture is inserted in the trick mode
6 video signal.

1 20. The system according to claim 19, wherein the display indicator is a
2 temporal reference field.

1 21. The system according to claim 20, wherein each temporal reference
2 field has an integer value and the step of selectively modifying the temporal
3 reference field of at least a portion of the plurality of original pictures comprises the
4 step of incrementally increasing by one the integer value of the temporal reference
5 field each time an original picture is repeated or when a dummy predictive picture is
6 inserted in the trick mode video signal.

1 22. The system according to claim 17, wherein each dummy predictive
2 picture is predicted from a reference picture.

1 23. The system according to claim 22, wherein the reference picture is an
2 intra picture.

1 24. The system according to claim 22, wherein the reference picture is a
2 predictive picture.

1 25. The system according to claim 17, further comprising a remote decoder
2 for remotely decoding at least a portion of the trick mode video signal.

1 26. A remote decoder system for performing a trick mode on a video signal
2 containing a plurality of progressively scanned original pictures, wherein each of the
3 plurality of progressively scanned original pictures contains a display indicator,
4 comprising:

5 a controller for reading data from a storage medium and generating the video
6 signal containing the plurality of original pictures; and

7 a processor, wherein the processor is programmed to:

8 in response to a trick mode command, selectively repeat at least one of
9 the original pictures to convert the video signal to a trick mode video signal;

10 monitor a bit rate of the trick mode video signal;

11 selectively insert at least one dummy predictive picture in the trick
12 mode video signal if the bit rate exceeds a predetermined threshold; and

13 selectively modify the display indicator of at least a portion of the
14 plurality of original pictures to reflect an intended display order when an
15 original picture is repeated or when a dummy predictive picture is inserted in
16 the trick mode video signal.

1 27. A system for performing a trick mode on a video signal containing a
2 plurality of progressively scanned original pictures, comprising:
3 a controller for reading data from a storage medium and generating the
4 video signal containing the plurality of original pictures; and
5 a processor programmed to:
6 receive a trick mode command; and
7 selectively insert at least one dummy predictive picture in the
8 video signal to form a trick mode video signal.

1 28. The system according to claim 27, wherein each of the plurality of
2 original pictures contains a display indicator and the processor is further
3 programmed to selectively modify the display indicator of at least a portion of the
4 plurality of original pictures to reflect an intended display order each time the
5 processor performs the selectively inserting step.

1 29. The system according to claim 28, wherein the display indicator is a
2 temporal reference field.

1 30. The system according to claim 29, wherein each temporal reference
2 field has an integer value and the processor is further programmed to selectively

3 modify the temporal reference field of at least a portion of the plurality of original
4 pictures by incrementally increasing by one the integer value of the temporal
5 reference field each time the processor performs the selectively inserting step.

1 31. The system according to claim 27, further comprising a remote
2 decoder, wherein the remote decoder decodes at least a portion of the trick mode
3 video signal.

1 32. A system for decoding a digitally encoded signal, comprising:
2 a remotely located decoder; and
3 a transmission channel for transmitting the digitally encoded signal to
4 the remotely located decoder, wherein the remotely located decoder decodes
5 at least a portion of the digitally encoded signal, wherein the digitally encoded
6 signal contains at least one dummy predictive picture and additional pictures
7 selected from the group comprising intra pictures, predictive pictures or
8 bidirectional predictive pictures.